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EXAMINER

BELIVEAU, SCOTT E

ART UNIT

PAPER NUMBER

2614

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/537,022

Applicant(s)

KIMBROUGH ET AL.

Examiner

Scott Beliveau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 40-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 5, 6. 6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-39, drawn to system network/architecture for transporting voice, video and data signals, classified in class 725, subclass 129.
 - II. Claim 40, drawn to a digital laser transmitter circuit, classified in class 359, subclass 180.
 - III. Claim 41-43, drawn to the method for transmitting data over a passive optical network, classified in class 370, subclass 486.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions I, II, and III are related as combination and sub-combination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the sub-combination as claimed for patentability, and (2) that the sub-combination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the sub-combination as claimed because invention I details the overall network architecture of a FTTH system and as such does not require the particulars of the claimed transmission protocol of invention II or the laser transmitter circuit of claim III. The transmitter circuit has applications over and above that of the FTTH, and invention III details the protocols utilized in a FTTH system. The sub-combinations have separate utility such as wherein invention II details a laser transmission circuit and invention III details an optical network

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transmission protocol wherein both inventions are operable in other optical networks other than those set forth by invention I.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

3. During a telephone conversation with David Cochran on 14 February 2003 a provisional election was made without traverse to prosecute the invention of a system network/architecture for transporting voice, video and data signals, claims 1-39. Affirmation of this election must be made by applicant in replying to this Office action. Claims 40-43 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

5. The drawings are objected to because element "DBS 42" is labeled twice in Figure 1. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because of the following:

- Reference character “172” has been used to designate both the “CATV connector” and the “DBS connector” (Figure 9; Page 36, Line 9);
- Reference character “72” has been used to designate both a “resistor” and a feedback line between the RISC processor 112 and the echo canceller (Figure 6);
- Reference character “52” has been used to designate both the “optical receiver” and the “optical transmitter” (Figure 10);
- Reference character “54” has been used to designate both the “receive Ethernet PHY” and the “transmit Ethernet PHY” (Figure 10);
- Reference character “56” has been used to designate both the “ringing SLICs” (Page 39, Line 13) and the “POTS lines” (Figures 10-11; Page 17, Line 16);
- Reference character “144” has been used to designate both the “receive Ethernet PHY” and the “transmit Ethernet PHY” (Figure 12);

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 24, 26, 36 (Figure 1), 72, 100, 106 (Figure 6), 122D (Figure 7), 190, 192 (Figure 10), 204 (Figure 11), 240, 242 (Figure 12), 376 (Figure 16B). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in

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reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 98 (Page 30, Line 11) and 155 (Page 33, Line 14). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
9. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “drop processor unit” of claim 17 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. The examiner is unclear as to which element in the drawings the “drop processor unit” is referencing as the embodiment contains a number of “processors” none of which are labeled as a “drop processor unit”. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

10. Applicant is reminded of the proper language and format for an abstract of the disclosure. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.

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11. Updated status of all co-pending applications is further required as appropriate.
12. The disclosure is objected to because of the following informalities:
 - Reference to “10Base “__” T” should be amended to read “10Base-T” (Page 19, Lines 6, 22);
 - Reference “100Base “__” T” should be amended to read “100Base-T” (Page 22, Lines 20, 21);
 - References to “us” should be amended to read “μs” (Page 31, Lines 15, 17; Page 32, Line 6).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, claim 21 is currently dependent upon itself. For the purposes of art evaluation, the examiner shall presume that it has been amended to be dependent on claim 20.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
17. Claims 1-2, 6-19, and 29-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stalley et al. (US Pat No. 5,479,286), in view of Foltzer (US Pat No. 5,969,836), and in further view of Ethridge et al. (WO 98/34379).

In consideration of claim 1, the Stalley et al. reference discloses a passive fiber network which distributes voice and video to/from the central office/headend to a "plurality of home network units" [9] (Figure 2). As illustrated in Figure 2, the embodiment includes: "optical video distribution circuitry" [5/1] for multiplexing the aforementioned "television signals" and distributing them at a "first wavelength" of 1550 nm (Col 3, Lines 13-28; Col 5, Lines 5-11), "telephony distribution circuitry" [6], "optical multiplexing circuitry" [5] for combining the aforementioned signals, a "passive optical network" [3'], and a "plurality of home network units" [9] for converting the "combined optical signals" into "television signals" [12] "DBS television signals" (Col 4, Lines 59-64; Col 5, Lines 5-11), and "telephone signals" [15].

The Stalley et al. embodiment does not utilize a combined “first” and “second wavelength” in the up-stream direction as required by the claim. Rather, the reference discloses that combined video and telephony are transmitted in the upstream direction at 1550 nm and transmitted in downstream direction at a frequency of 1300 nm (Col 4, Lines 38-42). The Foltzer reference teaches that such an arrangement is an inefficient use of signal distribution over a single fiber. The reference discloses that “conventional systems” as illustrated in Figure 2 utilize an optical communication system for the distribution of both telephony and video signals using “optical multiplexer to combine and transmit a combined “first wavelength” video signal with a “second wavelength” telephony signal (Col 2, Lines 50-55). Accordingly, it would have to one of ordinary skill in the art at the time of the invention to modify the passive fiber network of the Stalley et al. reference to utilize the “conventional” simultaneous transmission techniques described by Foltzer for the purposes of efficiently facilitating multiple distribution channels over a single fiber (Foltzer: Col 2, Lines 3-13). It should be noted that while the Foltzer reference discusses an improvement over the “conventional” system presented in Figure 2, the reference does not explicitly teach away from the use of such a system in that the “conventional” is characterized as a valid method for the transmitting of both upstream and downstream telephony that is an improvement over Figure 1 (Col 1, Lines 59-67 – Col 2, Lines 1-13) and furthermore is disclosed to provide an advantage in that conventional couplers may be utilized (Col 4, Lines 5-13).

As to the recited limitation such that “packet data signals” are further distributed over the network, the Stalley et al. reference suggests the distribution of interactive services, but does

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not explicitly disclose the use of packetized data (Col 4, Lines 5-10). However, the use of such in conjunction with passive optical networks has been well established in the art as further outlined in the International Telecommunication Union recommendation article (ITU-T G.983.1 Broadband optical access systems based on Passive Optical Networks). An example of such a system is illustrated in Figure 4 of the Etheridge et al. reference. It is well known in the art that subscribers often tie up the telephone when connecting to the Internet. The Etheridge et al. reference teaches subsequently that there is a need for a method of providing users with connections to the Internet without tying up the voice paths in the local central office switching equipment (Page 5, Lines 6-20). Accordingly, it would have been obvious to one of ordinary skill in the art to modify the Stalley et al. reference to further utilize the “packet data signal” techniques in conjunction with a optical fiber network as suggested by Etheridge et al. for the purposes of facilitating connections to the internet which do not tie up the central office and further makes better use of fiber optic distribution facilities (Etheridge et al.: Page 5, Lines 11-21). While the Etheridge et al. reference is directed at a FTTC ONU implementation, it is recognized in the art that teachings pertaining to FTTC implementations are pertinent to FTTH implementations given that the aforementioned implementations are differentiated based on the number of units served by the ONU (ITU-T G.983.1 – Section 5).

Claim 2 is rejected wherein the Stalley et al. reference comprises an “optical multiplexer” [5] that is operable to combine the “CATV television signals and the DBS television signals” (Col 3, Lines 13-35; Col 5, Lines 5-11). The embodiment further comprises a “first optical stage” (Col 3, Lines 3-6).

Claim 6 is rejected wherein the Stalley et al. reference discloses that the aforementioned “first wavelength is approximately 1550 nanometers” (Col 4, Lines 40-42).

In consideration of claim 7, the Stalley et al. reference does not explicitly disclose bandwidth utilized by the “CATV television signals”. The examiner takes OFFICIAL NOTICE that it is notoriously well known in the art for CATV television signals to occupy a bandwidth of “approximately 60 to 750 megahertz”. Accordingly, it would have been obvious to one of ordinary skill in the art that the aforementioned embodiment would expect to utilize such a bandwidth for the purpose of enabling the distribution of CATV television signals (Col 5, Lines 5-11).

Claim 8 is rejected wherein the reference discloses that the “DBS television signals occupy a bandwidth of approximately 950 to 2050 megahertz” (Col 4, Lines 54-55).

Claim 9 is rejected wherein Figure 4 of the Etheridge et al. reference discloses a “telephony interface platform” [24], a “data switch” [72], and a “plurality of optical interface units” [50]. The “optical interface units” [54] is operable to “convert the telephony signals into packet telephony signals” [78]. A “packet” as defined by the Microsoft® Computer Dictionary 5th edition is simply “a unit of information transmitted as a whole from one device to another on a network”. Accordingly, the examiner broadly interprets the telephony data as being “packetized” in conjunction with the PCM conversion. Alternative methods of “packetizing” the telephony data are referenced in conjunction with claim 20. The “optical interface units” [54] are further operable to “multiplex and demultiplex” [76] the data signals and convert them to/from optical signals.

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Claim 10 is rejected wherein the Stalley et al. reference further comprises a “element management system” [8] which is coupled to the “telephony interface platform” [6].

Claim 11 is rejected wherein the “digital telephone switch” [78] is coupled to the “telephone interface platform” [24] via a “plurality of DS-1 telephony signals” as illustrated in Figure 4.

Claims 12 and 13 are rejected wherein the “data switch” [72] is an “Ethernet switch” which is coupled to a plurality of “optical interface units” [54] via “100 Base T connections” [45] as illustrated in Figures 4-5 (Page 21, Lines 17-25).

In consideration of claim 14, the aforementioned Stalley et al. reference discloses a passive optical distribution network [3'] that comprises a plurality of fibers connected to a “home network unit” [9]. The reference, however, does not provide sufficient details as to the number of “transport fibers” connected to the “optical interface unit” [1]. Accordingly, the examiner relies on Figure 4 of the Etheridge et al. reference, wherein the “optical interface unit” [54] is coupled to “four or more of the transport fibers” [58].

Claim 15 is rejected wherein the Foltzer et al. reference as illustrated in Figure 15 discloses that the “second wavelength” utilized in the upstream communications is “1310 nm” (Col 2, Lines 14-16).

In consideration of claim 16, the Etheridge et al. reference does not explicitly disclose the use of the Point-to-Point Protocol over Ethernet service gateway in conjunction with the while 10-Base-T Ethernet connectivity. The use of such is well established in the art (as defined by RFC 2516). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Etheridge et al. reference to further utilize a

“PPPOE service gateway” for the purpose of supporting the concept of a “session” over the Ethernet similar to traditional cable modems so as to enable the service provider with the capability to charge customers based on connection time thus discouraging permanent connections and over-subscriptions to a service provider’s IP address pool.

Claim 17 is rejected wherein the “optical network units” [56] of Etheridge et al. further comprises a “drop processor” [184] that is operable to couple it to the “telephony interface platform” [24].

Claim 18 is rejected wherein the “optical interface units” [56] of Etheridge et al. are operable to “convert the telephony signals” [16] into PCM “packetized telephony” (Page 21, Lines 26-30 – Page 22, 1-2, Lines 16-30).

Claim 19 is rejected wherein Etheridge et al. reference discloses that the “packet data signals” may be “Internet packet data signals” (Page 6, Lines 6-20).

Claim 29 is rejected the “home network units” of Stalley et al. comprise connections for servicing televisions [12], and telephones [15]. The Etheridge et al. reference discloses that the “home network unit” [56] may further comprise a connection to a “computer” [10].

Claims 30 and 31 are rejected wherein the aforementioned connection to the “computer” [10] is an Ethernet 10Base-T connection as illustrated in Figure 4.

Claim 32 is rejected in view of the aforementioned combined teachings wherein the Stalley et al. reference discloses that the “home network units” [9] are operable of “transmitting upstream telephony” [11] to the central office/headend as illustrated in (Figure 2). As aforementioned, the “home network unit” [56] of Etheridge et al. is operable to distribute “Internet data signals” using a via an Ethernet data connection.

Claim 33 is rejected wherein the both the Stalley et al. and Foltzer references teach that upstream signals are converted to optical signals at the “second wavelength” of approximately 1310 nanometers (Foltzer: Col 2, Lines 30-36).

Claim 34 is rejected as aforementioned wherein the “telephony and Internet data signals are packetized signals” (Page 6, Lines 6-20; Page 21, Lines 26-30 – Page 22, 1-2, Lines 16-30).

In consideration of claim 35, the aforementioned combined references do not explicitly disclose that the transmission of “telephony packet signals” is given priority over “Internet data packet signals”. Over the years, telephony subscribers have grown accustomed to a high quality-of-service associated with voice communication signals. A subscriber is less likely to accept a poor quality telephone connection as a result of delayed packets. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to “prioritize” the transmission of “telephony” information over that of “Internet data” for the purpose of ensuring that a subscriber’s expectations for a high quality telephony conversation are met.

Claim 36 is rejected wherein the examiner takes Ethridge et al. reference further comprises an “optical mainframe” [54] that is operable to “route optical signals to a plurality of transport fibers” [56].

Claim 37 is rejected wherein the “home network unit” [9] as disclosed by Stalley et al. further comprises an “external power module” such that it is disclosed to receiver power from the user set-top receiver [13] (Col 4, Lines 60-64).

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18. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stalley et al. (US Pat No. 5,479,286), in view of Foltzer (US Pat No. 5,969,836), in view of Ethridge et al. (WO 98/34379), and in further view of Ortel (US Pat No. 5,861,966).

In consideration of claim 3, the Stalley et al. reference as aforementioned discloses the use of a passive optical network that comprises fiber amplifiers for downstream amplification (Col 3, Lines 4-8) and further connects a plurality of subscribers via individual fibers (Col 2, Lines 65-67). Accordingly, the reference implies the use of a “splitter” and associated “optical booster stages” comprising fiber amplifiers. Assuming arguendo, regarding the details of the overall network involving “splitters” and “optical booster stages”, the examiner relies on the representative architecture disclosed in the Ortel reference. As illustrated in Figure 4, the reference illustrates the use of “optical booster stages” [429] which are coupled to the “output of the splitter” as described in conjunction with Figure 3 (Col 5, Lines 21-36). Accordingly, it would have been obvious to one of ordinary skill in the art to utilize “splitters” and “optical booster stages” as shown in Ortel in conjunction with the Stalley et al. PON since it is inherent to the operation of optical systems that the introduction of splitters in the network introduces losses in the output signals. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to recognize the need to further introduce “optical booster stages” to counteract the losses associated with the splitters for the purpose of ensuring that the downstream subscribers receive the proper signal strength.

Claim 4 and 5 are rejected wherein the Ortel et al. reference discloses the use of “Erbium-doped fiber” amplifiers (Col 5, Lines 21-32).

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19. Claims 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stalley et al. (US Pat No. 5,479,286), in view of Foltzer (US Pat No. 5,969,836), in view of Ethridge et al. (WO 98/34379), and in further view of Henley et al. (US Pat No. 5,526,353).

In consideration of claim 20, the aforementioned Ethridge et al. discloses that the embodiment may utilize PCM “packetized telephony signals” and “Ethernet packetized data signals”. The reference, however, does not explicitly disclose that the PCM digital data packets may be subsequently converted to “Ethernet packet signals”. The Henley et al. reference discloses a means wherein PCM audio samples are assembled into Ethernet packets (Col 7, Lines 4-11; Col 11, Lines 4-11). Accordingly, it would have been obvious to one of ordinary skill in the art to modify the Etheridge et al. reference so as to encapsulate the PCM “packetized telephony signals” using an “Ethernet packet signal” as taught by Henley et al. for the purpose of ensuring that high quality voice communications are delivered to the subscriber by accounting for packet-based network variable transmission times (Henley et al.: Col 4, Lines 15-60).

Claim 21 is rejected wherein it would have been obvious to one of ordinary skill in the art at the time of the invention to further “identify whether a particular packet” belongs to a “packetized telephony signal or a packetized data signal” for the purpose of ensuring that the “packetized telephony signal” is given a higher routing priority given that subscribers are more sensitive to poor voice service/quality.

Claims 22 and 23 are rejected wherein the Ethridge et al. reference discloses the use of “Ethernet MAC addresses” for the routing of information signals as is known in the art (Page 44, Lines 10-11).

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20. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stalley et al. (US Pat No. 5,479,286), in view of Foltzer (US Pat No. 5,969,836), in view of Ethridge et al. (WO 98/34379), and in further view of Ethridge et al. (US Pat No. 6,353,609).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

The aforementioned Ethridge et al. (WO 98/34379) reference discloses that the embodiment may utilize PCM "packetized telephony signals" and "Ethernet packetized data signals". The reference, however, does not explicitly disclose that the PCM digital data packets may be subsequently converted to "Ethernet packet signals". The Ethridge et al. (US

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Pat No. 6,353,609) reference discloses a fiber access network for transporting voice and data signals in the local loop between a central office location and a plurality of remote local users. The reference teaches that PCM digital voice packets may be mapped to Ethernet packets and subsequently delivered (Col 6, Lines 13-23). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Ethridge et al. (US Pat No. 6,353,609) such that the “packetized telephony signals” are “Ethernet packet signals” for the purpose of ensuring that voice packets are prioritized in order to ensure quality sound delivery (Ethridge et al.: Col 2, Lines 46-49).

21. Claims 24-28 rejected under 35 U.S.C. 103(a) as being unpatentable over Stalley et al. (US Pat No. 5,479,286), in view of Foltzer (US Pat No. 5,969,836), in view of Ethridge et al. (WO 98/34379), and in further view of Mahony (US Pat No. 6,427,035).

In consideration of claim 24, the aforementioned Stalley et al. reference discloses a passive optical distribution network [3'] that comprises a plurality of fibers connected to a “home network unit” [9]. The reference however, does not provide sufficient details as to the connectivity of the network to the subscriber. The Mahony et al. reference discloses a fiber optic deployment for a FTTH implementation. In particular, the network comprises a “plurality of transport fibers” [102a/106a] (Col 8, Lines 22-30), a “plurality of drop fibers” [110], and a “plurality of passive optical splitters” [104] that are coupled between the “transport fibers and the drop fibers” as illustrated in Figure 1a. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the illustrative Mahony et al. fiber optic deployment in conjunction with the aforementioned combined references for the purpose of providing a fiber distribution architecture that

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provides continuous uninterrupted fiber optic service from a service provider central office to the subscriber premises (Mahony: Col 2, Lines 17-22).

Claim 25 is rejected wherein the aforementioned “optical splitters” [104] are at least “4 to 1 splitters” (Col 8, Lines 32-41).

In consideration of claim 26, the Mahony et al. reference does not explicitly disclose the length of the “transport fibers” [102a/106a]. The examiner takes OFFICIAL NOTICE that it is notoriously well known in the art for the “length of the transport fibers” to be less than “approximately 33,000 feet”. Accordingly, it would have been obvious to utilize “transport fibers” such as those disclosed in the Mahony et al. reference that are “less than 33,000 feet” for the purpose of negating the effects of signal loss or propagation errors developed within the transport fiber.

In consideration of claim 27, the Mahony et al. reference does not explicitly disclose the length of the “plurality of drop fibers” [110]. The examiner takes OFFICIAL NOTICE that it is notoriously well known in the art for the “length of the drop fibers” to be less than “approximately 3,3000 feet”. Accordingly, it would have been obvious to utilize “transport fibers” such as those disclosed in the Mahony et al. reference that are “less than 3,300 feet” for the purpose enabling the upstream “home network unit” transmitter to use lower power optical transmitters thus reducing the cost of each unit.

In consideration of claim 28, the Mahony et al. reference discloses that the “transport fibers” [106] may be spliced to the “splitter” [104] (Col 8, Lines 29-41). The Foltzer reference discloses that “passive optical splitters” may be “fusion spliced” (Col 2, Lines 47-50).

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22. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stalley et al. (US Pat No. 5,479,286), in view of Ethridge et al. (WO 98/34379).

Claim 38 is rejected as outlined in the rejection of claim 1, wherein the Stalley et al. reference discloses a “method for transmitting telephony and video signals” between a “central office” and a “plurality of subscriber homes”. Accordingly, the method involves the “multiplexing” [5] of “video and telephony signals”, “converting” and subsequently “transmitting” [1] them as “combined optical signals over a passive optical network” [3] to a “plurality of home network units” [9]. The “home network units” are operable to “extract” [10] and “demultiplex” the signals such that they are “routed” to “devices [12/13/15] within the subscribers home.

As to the recited limitation such that “data signals” are further distributed over the network, the Stalley et al. reference suggests the distribution of interactive services, but does not explicitly disclose the use of data (Col 4, Lines 5-10). However, the distribution of data over high-speed optical networks is well understood in the art. The Etheridge et al. reference teaches that it is well known in the art that subscribers often tie up the telephone when connecting to the Internet. The Etheridge et al. reference teaches subsequently that there is a need for a method of providing users with connections to the internet without tying up the voice paths in the local central office switching equipment (Page 5, Lines 6-20).

Accordingly, it would have been obvious to one of ordinary skill in the art to modify the Stalley et al. reference to further utilize the “data signal” techniques in conjunction with a optical fiber network as suggested by Etheridge et al. for the purposes of facilitating

connections to the internet which do not tie up the central office and further makes better use of fiber optic distribution facilities (Etheridge et al.: Page 5, Lines 11-21).

Claim 39 is directed towards the upstream distribution of signals from the home to the central office. The limitations are met in conjunction with the illustration of Figure 2 wherein "telephony signals" [15] are "converted into upstream optical signals", "multiplexed" with upstream signaling and "transmitted" [11] from the "home network unit" [9] to the central office illustrated on the left hand side of the Figure.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- The Masucci et al. (US Pat No. 6,498,667) reference discloses a method and approach to support the aggregation of multiple broadband services including voice, high-speed data, video and image through an ATM fiber optical system.
- The "Driving Fiber to the Home" article discloses the implementation of the an ATM-PON FTTH system in November of 1999. The article further discloses that the BellSouth® further intends to offer direct-to-home satellite television service.
- The ITU-T G.983.1 specification proposes the physical layer requirements and specifications for the physical media dependent layer, the TC layer and the ranging protocol of an ATM-based Passive Optical Network.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Beliveau whose telephone number is 703-305-4907.


The examiner can normally be reached on Monday-Friday from 8:00 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on 703-305-4795. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

SEB

February 22, 2003


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